

WHAT IS CLAIMED IS:

1. A method for separating a sapphire wafer serving as a substrate, on which semiconductor elements are formed, into
5 unit chips, comprising the steps of:

(a) grinding a rear surface of the sapphire wafer so that the sapphire wafer has a designated thickness;

(b) lapping the rear surface of the ground sapphire wafer so that the sapphire wafer has a designated thickness;

10 (c) polishing the rear surface of the lapped sapphire wafer so that the sapphire wafer has a designated thickness;

(d) sand-blasting the rear surface of the polished sapphire wafer by uniformly blasting particles at a designated pressure during a designated time onto the rear surface of the
15 polished sapphire wafer; and

(e) scribing the rear surface of the sand-blast ground sapphire wafer.

2. The method as set forth in claim 1,
20 wherein the sapphire wafer in the step (d) is warped such that a central portion of the rear surface of the sapphire wafer is higher than an edge portion of the rear surface of the sapphire wafer by a height of 1.5mm to 2.5mm.

25 3. The method as set forth in claim 1,

wherein the particles in the step (d) are made of one material selected from the group consisting of silicon (SiC), boron carbide (B_4C) and aluminum oxide (Al_2O_3).

5 4. The method as set forth in claim 1,
 wherein the particles in the step (d) have a diameter of
 $5\mu m$ to $50\mu m$.

 5. The method as set forth in claim 1,
10 wherein blast time of the particles in the step (d) is
 less than 5 minutes.

 6. The method as set forth in claim 1,
 wherein blast pressure of the particles in the step (d)
15 is $3kg/cm^2$ to $5kg/cm^2$.

 7. The method as set forth in claim 1,
 wherein the thickness of the sapphire wafer in the step
(d) is reduced by $2\mu m$ to $14\mu m$.

20 8. The method as set forth in claim 1,
 wherein the rear surface of the ground sapphire wafer in
 the step (d) is ground so as to have a surface roughness of
 less than $0.013\mu m$.

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